UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/488,373	01/20/2000	Toru Morita	SCEI 16.895(100809-16084)	4355

			EXAMINER
26304	7590	01/12/2006	FAULK, DEVONA E

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ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/488,373	MORITA, TORU
	Examiner	Art Unit
	Devona E. Faulk	2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _23 August 2005_.

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-9 and 11-18_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☒ Claim(s) _9,11,12 and 15-18_ is/are allowed.

6) ☒ Claim(s) _1-8_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _20 January 2000_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

       1. ☒ Certified copies of the priority documents have been received.

       2. ☐ Certified copies of the priority documents have been received in Application No. _____.

       3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   In view of the appeal brief filed on 8/23//2005, PROSECUTION IS HEREBY

REOPENED. New grounds of rejections are set forth below.

To avoid abandonment of the application, appellant must exercise one of the

following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply

under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied

by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130,

1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Response to Arguments

2.   The examiner notes that the applicant's arguments, filed 8/23/2005, with respect

to the rejection(s) of claim(s) 1-9,11-18 under 102(b) and 103(a) have been fully

considered and are persuasive only regarding the points that the Wu reference did not

teach of a sound waveform correspond to sound data read from CPU memory.

Therefore, the rejection has been withdrawn. However, upon further consideration, a

new ground(s) of rejection is made in view of Fujimoto.

3.   Upon closer inspection, the examiner has determined that there is some

allowable subject matter.

4.   The examiner maintains her assertion that Wu discloses a relationship between

the timing of the interrupts and the rise and fall of the sound waveform. Wu discloses

frequency data of musical notation that is loaded into the time to determine how much

time is needed for each interrupt and having a sound wave that is determined from that

data (column 5, lines 16-23). Wu also discloses data stored is composed of the time

interval data being accumulated in a memory when high signals coming from the

walking sensor go low. In, other words the time interval data indicative of the period

that the square wave pulse, in low form, coming from the walking sensor ends and the

next square wave pulse appears (column 3, lines 54-64). The examiner, therefore,

asserts that Wu teaches of the relationship between the timing of the interrupts and the

rise or fall of the sound waveform as claimed.

5.   Claim 10 is cancelled.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   **Claims 1-8 and 13,14** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Fujimoto et al. (US 6,238,291) in view of Wu (US 4,571,680).

Claims **1-5** share common features.

Regarding **claims 1-5, and 15**, Fujimoto discloses a method for generating a

clear playback sound in an electronic device including a CPU and a speaker

(Figure 3, the acoustic circuits are connected to speakers, column 6, lines 3 and

12), the method comprising the steps of:

emitting to a speaker of the electronic device sound data (column 6, lines

3 and 12) and of reading sound data from a CPU memory (column 10, lines 25-

30).

interrupt processing is implicit to CPU processing.

Fujimoto fails to teach of but Wu teaches of

dynamically altering a CPU interrupt signal in accordance with a sound data that

is read from a CPU memory (Wu teaches of an electronic music pace-counting

shoe comprising a microcomputer chip (SCP), and having an interrupt service

routine where the timer causes the interrupt to change based on frequency data

obtained from the musical table of memory M9 and data from memory M6

(column 6- column 7 , line 27); and

emitting to a speaker of the electronic device said sound data obtained in

connection with said CPU interrupt signal, wherein the timing between said

sound data and the timing of said CPU interrupt signal are made to agree with

each other to provide a clear playback sound (Wu teaches of output port (P16;

Figure 1) that provides output signals corresponding to the sound beats or music

upon walking to the amplifier (AMP) and speaker (SP). The incurrence of

interrupt is applied to alternately make P16 become 1 or 0. The time and the

number of times set for causing interrupt is applied to control the output

frequency P16 and to provide a music effect (column 6, lines 56-60). Thus n is 2

because there are 2 interrupts per cycle of the square wave);

wherein a period of said CPU interrupt signal is dynamically altered to t/n

(where n =2,3,...) with respect to a period t of a period of said sound data (The

incurrence of interrupt is applied to alternately make P16 become 1 or 0. The

time and the number of times set for causing interrupt is applied to control the

output frequency P16 and to provide a music effect (column 6, lines 56-60).

Thus n is 2 because there are 2 interrupts per cycle of the square wave.) and

wherein the timing of interrupt corresponds to a rise or fall of a sound

waveform of said sound data and discrepancy between the timing of said period

of said CPU interrupt signal and the timing of the rise and fall of the sound

waveform is substantially eliminated by said dynamically altering said period of

said CPU interrupt signal to T/n . Wu further discloses frequency data of

musical notation that is loaded into the time to determine how much time is

needed for each interrupt and having a sound wave that is determined from that

data (column 5, lines 16-23) and that data stored is composed of the time interval

data being accumulated in a memory when high signals coming from the walking

sensor go low. In, other words the time interval data indicative of the period that

the square wave pulse, in low form, coming from the walking sensor ends and

the next square wave pulse appears (column 3, lines 54-64). This implicitly

teaches of wherein the timing of interrupt corresponds to a rise or fall of a sound

wave form.

Furthermore regarding **claim 5**, Fujimoto further teaches of an image

circuit (Figure 3; reads on image data and audio data under CPU control).

Regarding **claim 15**, the method is implicit to the functionality of Fujimoto

modified by Wu.

It would have been obvious to modify Fujimoto to use Wu's method of

interrupt processing and to specifically have the timing of the interrupt

correspond to the rise and fall of the sound waveform in order to form a desired

musical result (column 5, line 22).

8.   **Claims 6,7,13 and 14** share common features.

Regarding **claims 6 and 7,** Fujimoto discloses an electronic device comprising

(Figure 3; entertainment system comprising a portable electronic device that is a child

machine that is detachably mounted to a parent machine of claims 13 and 14):

a CPU that specifies sound data (Figure 3, column 10, lines 25-30)

a speaker that emits sound that corresponds to said analog signal (the

acoustic circuits are connected to speakers, column 6, lines 3 and 12).

Interrupt processing is implicit to CPU processing.

Fujimoto fails to teach but Wu teaches of a CPU that specifies sound data

by the timing of said CPU interrupt signal;

a timer unit that generates a CPU interrupt signal (Wu teaches of a timer ,

column 2, line 47) and a timer interrupt routine (column 6, lines 56-61); the timer

is a part of the microcomputer);

said CPU controlling said timer unit in accordance with a period T of said

sound data, dynamically altering a period of said CPU interrupt signal, causing a

switching timing of said sound data and the period of said CPU interrupt signal to

agree, and generating a clear playback sound (Wu teaches of the incurrence of

interrupt is applied to alternately make P16 become 1 or 0. The time and the

number of times set for causing interrupt is applied to control the output

frequency P16 and to provide a music effect (column 6, lines 56-60). Thus n is 2

because there are 2 interrupts per cycle of the square wave. Thus P16 outputs

digital data.);

wherein the period of said CPU interrupt signal is dynamically altered to

T/n (where n=2,3,...) with respect to period T of said sound data(The incurrence

of interrupt is applied to alternately make P16 become 1 or 0. The time and the

number of times set for causing interrupt is applied to control the output

frequency P16 and to provide a music effect (column 6, lines 56-60). Thus n is 2

because there are 2 interrupts per cycle of the square wave. Thus P16 outputs

digital data.), and wherein

The timing of interrupt corresponds to a rise or fall of a sound waveform of

said sound data and discrepancy between the timing of said period of said CPU

interrupt signal and the timing of the rise and fall of the sound waveform is

substantially eliminated by said dynamically altering said period of said CPU

interrupt signal to T/n (Wu further discloses Wu discloses frequency data of

musical notation that is loaded into the time to determine how much time is

needed for each interrupt and having a sound wave that is determined from that data (column 5, lines 16-23) and that data stored is composed of the time interval data being accumulated in a memory when high signals coming from the walking sensor go low. In, other words the time interval data indicative of the period that the square wave pulse, in low form, coming from the walking sensor ends and the next square wave pulse appears (column 3, lines 54-64)). This implicitly teaches of wherein the timing of interrupt corresponds to a rise or fall of a sound wave form.

It would have been obvious to modify Fujimoto to use Wu's method of interrupt processing and to specifically have the timing of the interrupt correspond to the rise and fall of the sound waveform in order to form a desired musical result (column 5, line 22).

Regarding **claim 7**, Fujimoto discloses the use of speakers to output sound effects and so it is obvious that D/A converter be present to order to be able to output analog data (claim 7).

Regarding **claim 8**, Fujimoto as modified by Wu discloses wherein the period of said CPU interrupt signal is dynamically altered to T/2 (See above apropos rejection of claim 7).

Allowable Subject Matter

9.   **Claims 9,11,12,15-18** are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Prior art Fujimoto et al. (US 6,238,291) discloses a cartridge, game machine and bi-directional communication type game system. Prior art Wu (US 4,571,680) discloses an electronic music pace-counting shoe. Prior art Uchiyama et al. (5,018,428) discloses an electronic musical instrument in which musical tones are generated on the basis of pitches extracted from an input waveform signal. Prior art, Usami et al. (EP 0 463 409 A2) discloses a musical tone waveform generation apparatus. Prior art, Shiba et al. (EP 0 376 342) discloses a data processing apparatus for electronic musical instruments. Prior art, Yamato et al. (US 6,115,036) disclose a video game/ videographic program editing apparatus with program halt and data transfer including a down counter, a CPU and an interrupt controller. Prior art Hanson (US 5,132,955) discloses a method and apparatus for synchronizing multiple CD players include a down counter under the control of the CPU. Prior art Furuhashi et al. (US 5,789,690) discloses an electronic sound source having reduced spurious emissions. The prior art or combination thereof fails to disclose or make obvious an electronic means causing said CPU controlling a down counter based of the period of sound data. Therefore the prior art of combination thereof fails to disclose or make obvious an electronic device, an entertainment system, and a method for generating clear playback sound in an electronic device as claimed.

Conclusion

2.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 5,018,428 to Uchiyama et al. discloses an electronic musical

instrument in which musical tones are generated on the basis of pitches

extracted from an input waveform signal. Uchiyama discloses explicitly wherein

a timing of interrupt corresponds to a rise or fall of a sound waveform of sound

data (column 17, lines 55-60, Figure 18).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Devona E. Faulk whose telephone number is 571-272-

7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

DEF

HUYEN LE
PRIMARY EXAMINER